

WHAT IS CLAIMED IS:

1. A wet lay process for preparing a glass fiber mat comprising the steps of:
 - (a) sizing glass fibers with a sizing composition which includes a partially
5 amidated polyalkylene imine cationic lubricant;
 - (b) separating said sized glass fibers by immersing said sized glass fibers in an
aqueous dispersant medium, whereby a slurry is formed;
 - (c) agitating said slurry;
 - (d) removing individual sized glass fibers from said aqueous slurry;
 - 10 (e) drying said individual sized glass fibers;
 - (f) contacting said dried, sized glass fibers with a thermosetting binding resin;
and
 - (g) curing said thermosetting resin whereby a glass fiber mat is formed.
- 15 2. A process in accordance with Claim 1 wherein said partially amidated
polyalkylene imine cationic lubricant comprises between about 0.005% and about
0.20% by weight, said percentages being by weight, based on the total weight of the
sizing composition.
- 20 3. A process in accordance with Claim 1 wherein said partially amidated
polyalkylene imine has a residual amine value of from about 200 to about 800 and is
the reaction product of fatty acids containing between about 2 and about 18 carbon
atoms and a polyethylene imine having a molecular weight of from about 800 to about
50,000.
- 25 4. A process in accordance with Claim 1 wherein said sized glass fibers have
a loss on ignition in the range of between about 0.01% and about 0.75%.

5. A process in accordance with Claim 4 wherein said sized glass fibers have a loss on ignition in the range of between about 0.05% and about 0.5%.

6. A process in accordance with Claim 1 wherein said step (b) of separating
5 said sized glass fibers occurs in the presence of an emulsifier to generate entrained air.

7. A process in accordance with Claim 1 wherein said drying step (e) occurs on a endless moving conveyer.

8. A process in accordance with Claim 7 wherein said binding step (f) occurs
10 on an endless moving conveyer disposed adjacent to said endless moving conveyer employed in drying said dried sized glass fibers.

9. A process in accordance with Claim 8 wherein said thermosetting binding
15 resin is urea formaldehyde.

10. A process in accordance with Claim 1 wherein said curing step (g) occurs by heating said product of step (f) at a temperature of at least about 175°C.

11. A glass fiber web comprising glass fibers sized with a sizing composition
20 which includes a partially amidated polyalkylene imine cationic lubricant.

12. A web in accordance with Claim 11 wherein said sized glass fibers are dispersed in a cured thermosetting resin.

13. A web in accordance with Claim 12 wherein said partially amidated
25 polyalkylene imine cationic lubricant comprises between about 0.005% and about 0.02%, said percentages being by weight, based on the total weight of the sizing composition.

14. A web in accordance with Claim 13 wherein said sized glass fibers have a loss on ignition in the range of between about 0.01% and about 0.75%.

5 15. A web in accordance with Claim 14 wherein said sized glass fibers have a loss on ignition in the range of between about 0.05% and about 0.5%.

16. A web in accordance with Claim 15 wherein said sized glass fibers have a loss on ignition in the range of between about 0.1% and about 0.2%.

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17. A web in accordance with Claim 14 wherein said partially amidated polyalkylene imine has a residual amine value of from about 200 to about 800 and is the reaction product of fatty acids containing between about 2 and about 8 carbon atoms and a polyethylene imine having a molecular weight of from about 800 to about
15 50,000.

18. A web in accordance with Claim 11 wherein said cured thermosetting resin is cured urea formaldehyde.